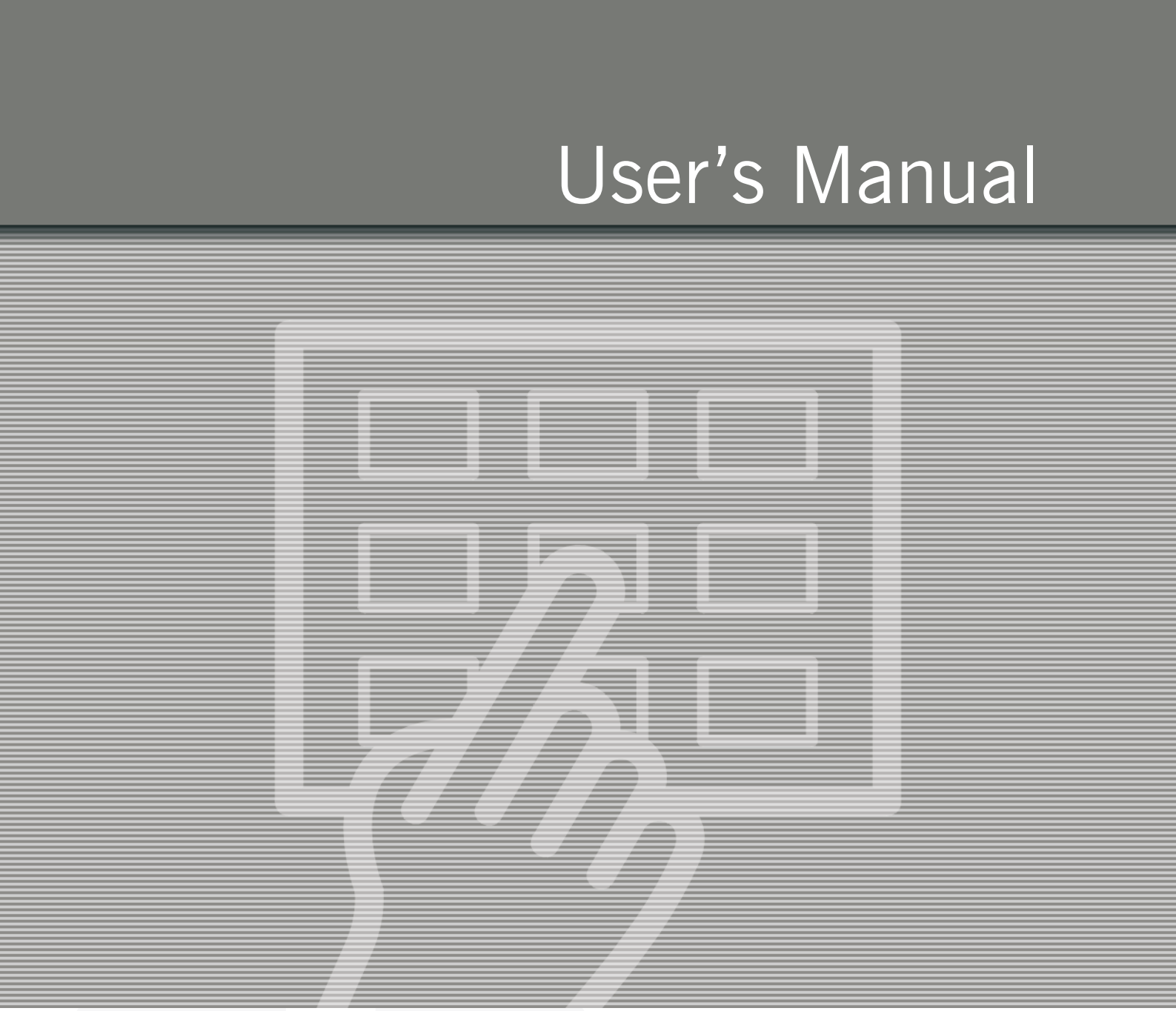
User's Manual

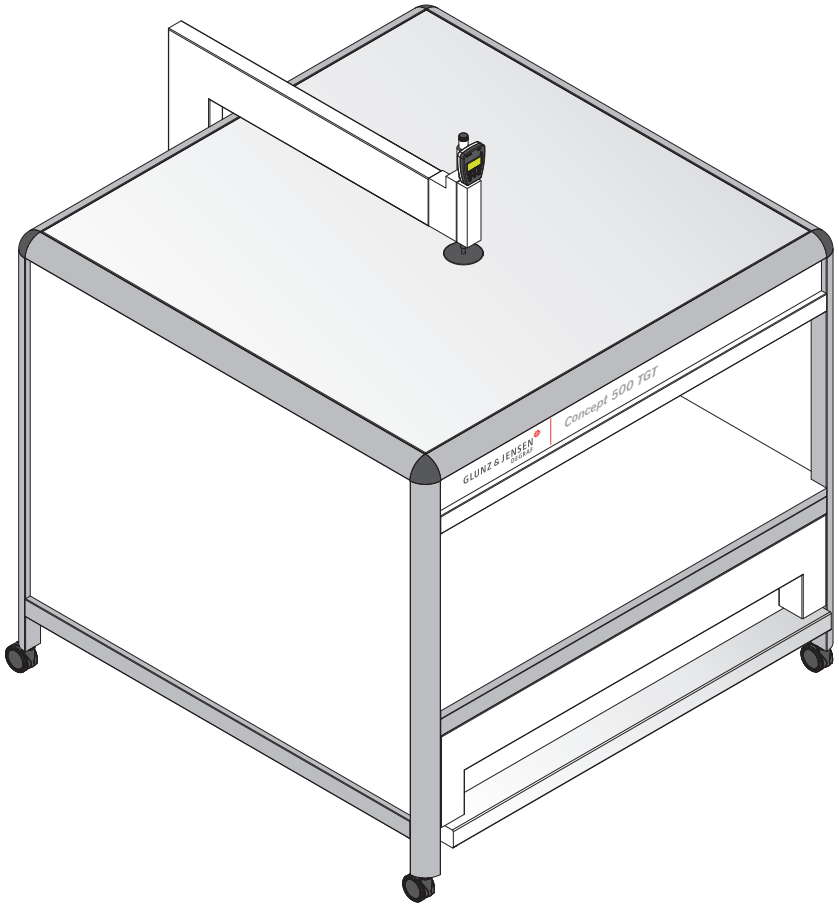


CONCEPT 500 TGT

GLUNZ & JENSEN
DEGRAF

User's Manual

CONCEPT 500 TGT



Edition AA, September 2014
This book has part No 10076069 (GB)

Part 0: General information

This manual

Products covered

This manual is valid for: **CONCEPT 500 TGT** from serial no **366.001**.

The serial number is specified on the equipment name plate located on the rear end of the equipment.

Always read the *Safety Instruction Manual part No 21741* before installing or **operating the equipment.**

This manual is published by: **Glunz & Jensen S.p.A.**
Via Alessandro Volta 28
20088 – Rosate (MI) – ITALY
Tel.: +39 02 900 90 180 – Fax: +39 02 900 90 149
Internet: www.degraf.glunz-jensen.com

Copyright © 2015 by Glunz & Jensen S.p.A.

About this manual

Intended use of this manual

This manual describes the common use procedures of the equipment. It is intended for the daily user and should be kept with the equipment for reference at all times.

Reservations

- This manual was written and illustrated using the best possible information available at the time of publication.
- Any differences between this manual and the equipment reflect improvements introduced after the publication of the manual.
- Changes, technical inaccuracies and typographic errors will be corrected in subsequent editions.
- As a part of our policy of continuous improvement, we reserve the right to alter design and specifications without further notice.

Notes, cautions, and warnings !

Throughout the manual notes, cautions, and warnings are written in bold like the example below:

Electrical installation must conform to local regulations and guidelines.

Symbol	Meaning	Explanation
	Note	The operator should observe and/or act according to the information in order to obtain the best possible function of the equipment.
	Caution	The operator must observe and/or act according to the information in order to avoid any mechanical or electrical damage to the equipment.
	Warning	The operator must observe and/or act according to the information in order to avoid any personal injury.

Unintended use of the equipment

Glunz & Jensen S.p.A. does not take any responsibility for any damage or accidents caused by unintended use of the equipment:

- It is absolutely prohibited to make any modifications, electrical nor mechanical, of the equipment. If however this prohibition is disregarded, Glunz & Jensen warranty will no longer apply.

Intended use of the equipment

- This equipment is designed to give the operator an instrument of absolute reliability for the control of thickness and depth of relief in the flexographic plates.

Installation

- Never install the equipment in explosive environments.
- It is the responsibility of the owner and operator/s of this equipment that the installation is made in accordance with local regulations, and by engineers authorized to carry out electrical installations.
- Installation, service and repair must be performed only by Service Technicians who are trained in servicing the equipment.
- The manufacturer cannot be held responsible for any damage caused by incorrect installation of this equipment.
- The equipment is intended for installation in a restricted access location only.

Service assistance

- If help is needed to correct any problem with the equipment, please contact your supplier.

Table of contents

Part 0: General information 0-2
This manual 0-2
Products covered 0-2
About this manual 0-3
Intended use of this manual 0-3
Reservations 0-3
Notes, cautions, and warnings ! 0-3
Unintended use of the equipment 0-4
Intended use of the equipment 0-4
Installation 0-4
Service assistance 0-4

Part 1: Technical specifications 1-1
General environmental information 1-1
The equipment does not contain 1-1
Batteries 1-1
Recycling 1-1
Electrical specifications 1-1
Mechanical specifications 1-2
Dimensions 1-2
Weights 1-2

Part 2: Daily use 2-1
General 2-1
Initial operation of the equipment 2-1
Equipment description 2-2
Measuring instrument 2-3
LCD display 2-4
Basic operations 2-5
Starting/stopping the measuring instrument 2-6
Switching the resolution 2-6
Switching the measurement system 2-6
Setting the origin 2-7
Measurement modes 2-8
Analog display 2-11
Switching the counting direction 2-11
Locking the buttons 2-11
Data input and output 2-12
Output connector 2-12
Output data format (DATA1) 2-12
Timing chart 2-13

Part 3: Measuring plate thickness 3-1

Part 4: Troubleshooting 4-1
General 4-1

Part 5: Spare parts 5-1
General 5-1
Ordering spare parts 5-1
Finding a spare part 5-1
Thickness gauge table 5-3

Part 1: Technical specifications

General environmental information

The equipment does not contain

- Ozone depleting substances according to Montreal protocol
- Asbestos
- Polychlorinated biphenyl or Poly- Cyclohexylenedimethylene Terephthalate
- Cadmium
- Lead as additive to plastic parts

Batteries

No batteries in this equipment.

Recycling

The equipment should be disposed at a certified appliance recycling centre or processing centre.

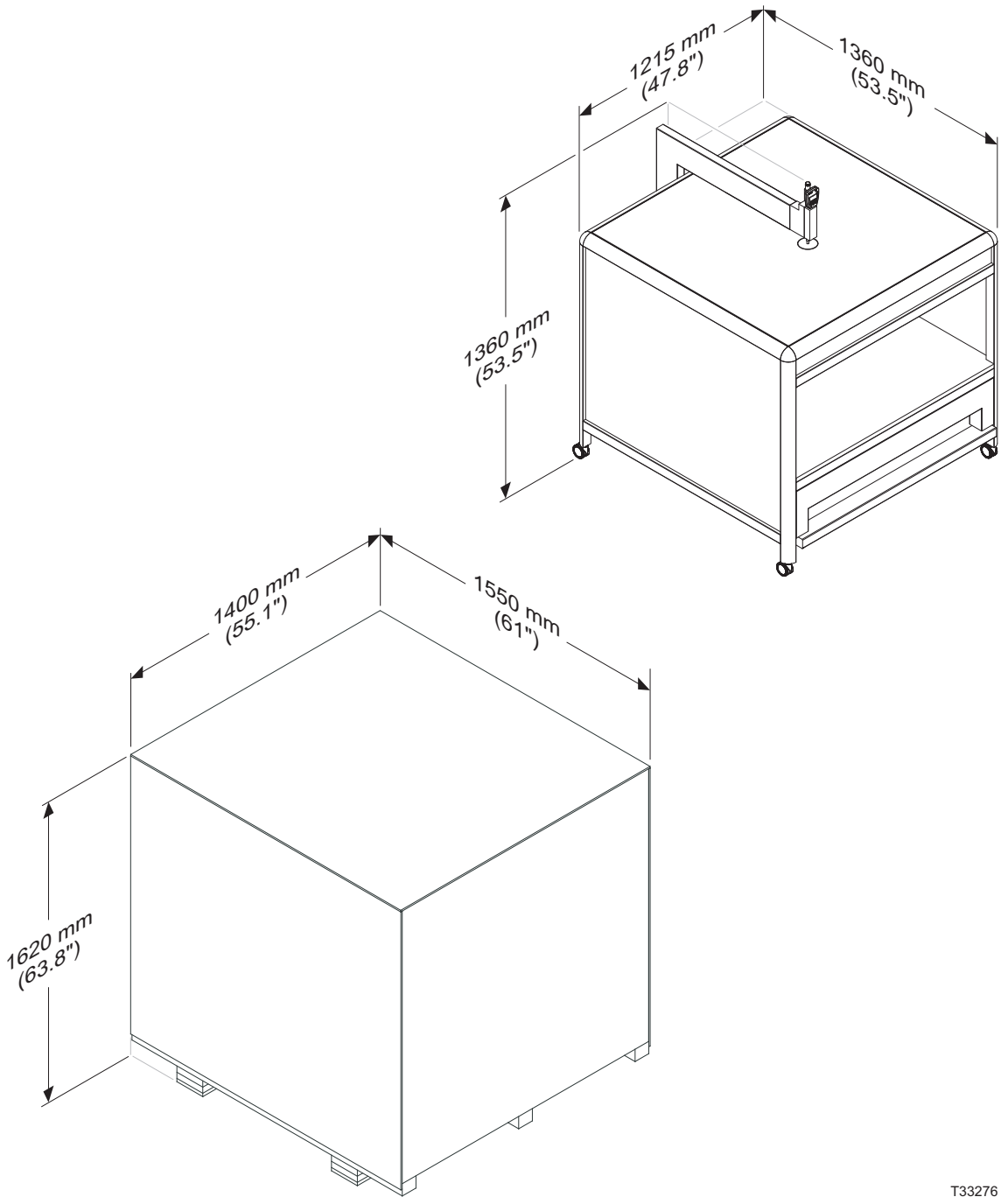
Electrical specifications

AC adapter is delivered with the equipment.

Power supply	AC adapter, 9 V, 500 mA

Mechanical specifications

Dimensions



Weights

Weight, crated (± 5%)	approx. 460 kg (1014 lb)
Weight, equipment	approx. 180 kg (397 lb)

Part 2: Daily use

General

This equipment is designed to give the operator an instrument of absolute reliability for the control of thickness and depth of relief in the flexographic plates. In the measuring process uses gravity, so there is no pressure on plate. This plate gauge measuring table is controlled by foot switch/pedal and is intended for any plate size. It is possible to set a tolerance, so an alarm triggers if the measurement is outside the tolerance.

This equipment is equipped with a specific control panel which ensures very easy control.

Initial operation of the equipment

Make sure the room temperature is between 17 and 28°C (63 and 82°F) and relative humidity on max. 80%.

Before turning the equipment on make sure that the working area around the equipment is clean and free for easy movement.

Check the power cable.

- Remove the DC jack cover at the top of the display. Insert the DC plug of the AC adapter delivered with the equipment securely into the DC IN jack.
- Insert the AC plug at the other end securely into a power outlet or extension cord.
- As soon as power is supplied, LCD appears and back light turns on.

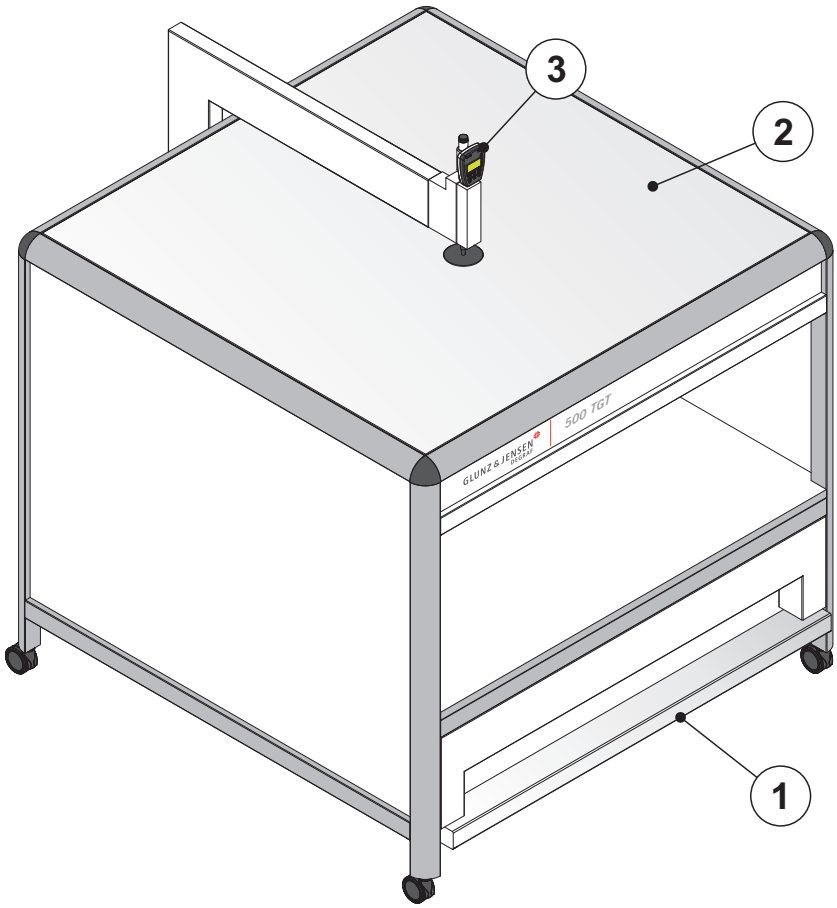
Before shutting off the power supply, always press the ON/OFF button to turn the measuring instrument off. Shutting off the power while measuring instrument is operating can damage origin and other memory data.

- Press the **ON/OFF** button to start (begin) and stop (end) the measuring instrument.

Equipment description

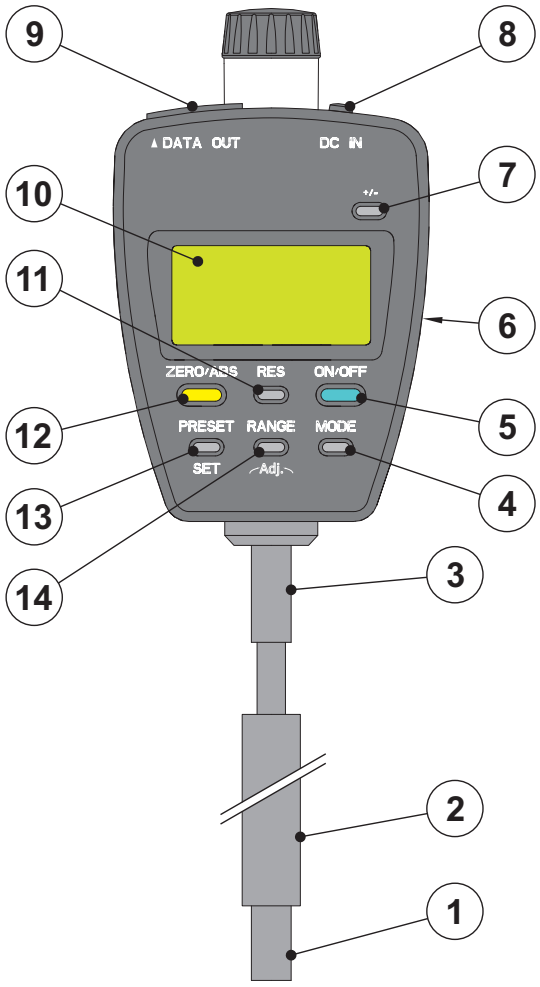
The equipment consists from the three main parts:

- **foot switch/pedal (1)**,
- **measuring table (2),**
- **measuring instrument (3)**.



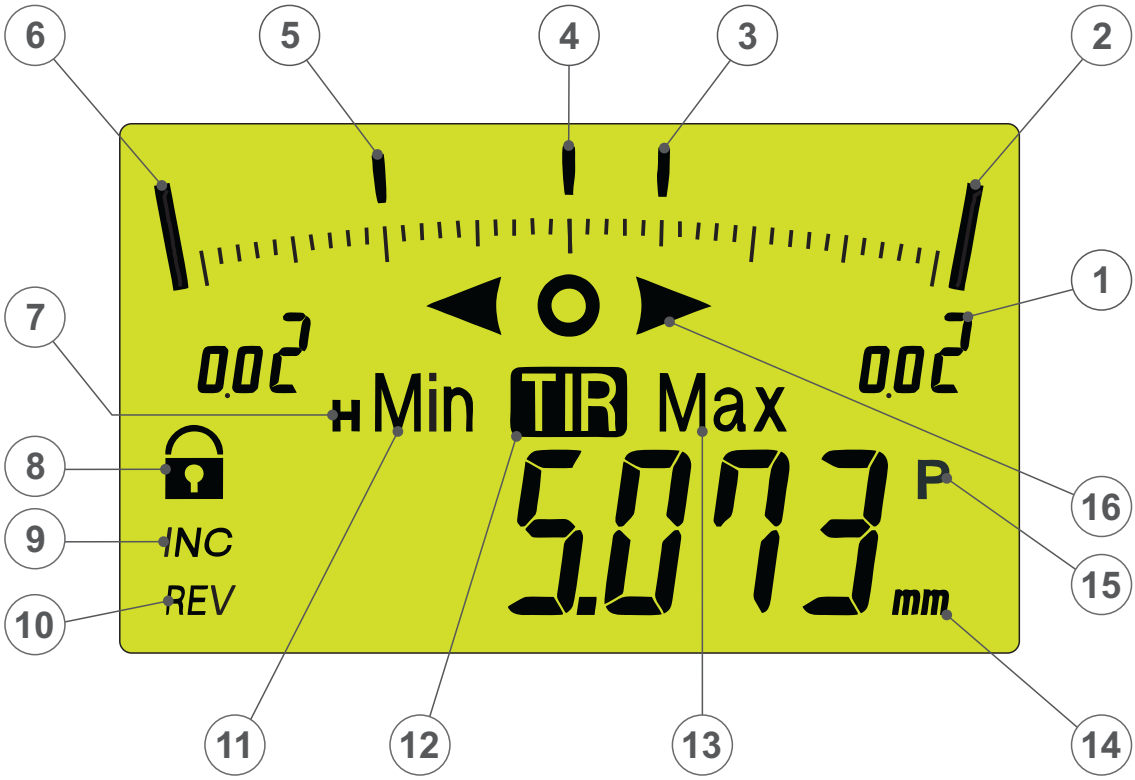
T11413

Measuring instrument



Item	Description	Item	Description	Item	Description
1	Contact point	6	Release hole (from side)	11	RES button
2	Spindle	7	+/– button	12	ZERO/ABS button
3	Stem	8	DC jack	13	PRESET/SET button
4	MODE button	9	Output connector	14	RANGE/→Adj.← button
5	ON/OFF button	10	LCD display	-	AC adapter (not shown)

LCD display



Item	Description	Item	Description	Item	Description
1	Analog range	7	Hold sign	13	Max. peak hold mode
2	Upper over range	8	Function lock	14	Unit
3	Upper pointer (flashes)	9	Comparison measure	15	Preset the origin
4	Pointer	10	Reverse count measure	16	GO/NG judgement display
5	Lower pointer (flashes)	11	Min. peak hold mode		
6	Lower over range	12	TIR mode		

The pointers (3), (4) and (5) flashes faster when two or more overlap.

The parameters indicated by upper pointer **(3)** and lower pointer **(5)** are determined by the measurement mode, as shown in the table below.

Pointer	Normal mode	Tolerance mode	Max. peak hold	Min. peak hold	TIR hold
Upper **(3)**	(disappear)	upper limit	max. point	(disappear)	max. point
Lower **(5)**	(disappear)	lower limit	(disappear)	min. point	min. point

Basic operations

Button	Condition		Function
ON/OFF	Anytime		Switching on/off
RES	Anytime		Switching between 0.001 mm and 0.01 mm
ZERO/ABS	Normal or tolerance determination mode	< 2 s	Switch to the INC system and set to zero
		> 2 s	Switch to the ABS system
	While preset		Cancel preset value and return to previous condition
	A peak hold mode, > 2 s	ABS	Set to zero at the hold position
		INC	Set to zero at the current position
PRESET/SET	Normal mode		Enter the origin setting (switch to the ABS system)
	While check limit, > 2 s		Enter the tolerance limit setting
	Any other mode		Enter the selected mode, release the hold
MODE	Normal mode		Select measurement modes
	Any other mode, > 2 s		Return to the normal mode
RANGE/→Adj.←	< 2 s		Switching the analog display range
	> 2 s		Pointer centering in analog display's range
+/–	Normal mode, < 2 s		Switching the counting direction
	All modes, > 2 s		Switching the function lock/unlock

Explanatory notes:

ABS	Absolute measurement system
INC	Comparative measurement system
> 2 s	Keep depressed for more than 2 seconds
< 2 s	Simple press

Starting/stopping the measuring instrument

To start or stop the measuring instrument, press the **ON/OFF** button.

Switching the resolution

To toggle the display resolution (e.g. between 0.305 and 0.31 and vice versa), press the **RES** button.

When the resolution switches, the analog display range switches too.

The last digit of preset values and tolerance setting values is rounded off according to the number of display digits.

Switching the measurement system

- **Absolute measurement system (ABS)** - when the origin is set in the ABS system, the absolute origin position for measurement is stored in memory. The origin position is held, as long as its position in relation to the absolute origin, or setting value do not change. Measured values are displayed as distances from the absolute origin.
- **Comparative measurement system (INC)** - holds the position data of the absolute origin, and displays the distance from the position set to zero.

To switch from ABS to INC system, press **ZERO/ABS** button in the normal or tolerance determination mode. Afterwards **INC** appears in the LCD display and the display is set to zero.

To switch from INC to ABS system, keep the **ZERO/ABS** button depressed for at least 2 seconds in the normal or tolerance determination mode.

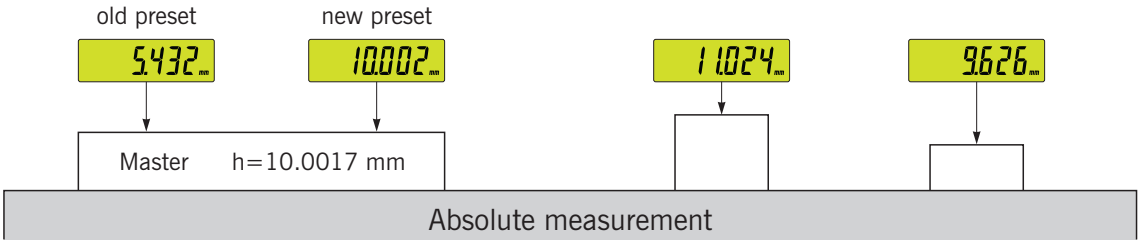
Setting the origin

The origin is set from the factory (to 0.000 mm), but in case of need it is possible to change it by using a calibrated reference gauge or master gauge.

- To set the preset value, press **PRESET/SET** button in the normal mode. The previously set preset value appears and P flashes in the display.
- The gauge is forcibly switched to the ABS system when the origin is preset.
- To set a new preset value, keep the **PRESET/SET** button depressed for at least two seconds to select which digit to set. The flashing digit ("_" means flashing digit) can be set. Press the **PRESET/SET** button to increase the value of the flashing digit.
- While P is flashing, press the **PRESET/SET** button to set the new preset value. This value is stored in memory as the distance (origin data) from the absolute origin to the current position of the contact point.

Example of setting the absolute origin with the bottom end of the master gauge as the measurement reference (0.000 mm). When the calibration value of the master gauge height is approximately 10.002 mm and the contact point is contacting the master gauge, set the calibration value to the preset value (origin position setting) by the following procedure.

Step	PRESET/SET	Display	Step	PRESET/SET	Display
–	(set value)	5.432	9	> 2 seconds	10.000
1	< 2 seconds	000.000	10	< 2 seconds	10.001
2	> 2 seconds	000.000	11	< 2 seconds	10.002
3	> 2 seconds	000.000	12	> 2 seconds	10.002
4	> 2 seconds	00.0.000	13	< 2 seconds	10.002
5	< 2 seconds	0 10.000			
6	> 2 seconds	0 10.000	–	(repeat value)	9.876
7	> 2 seconds	0 10.000	1	< 2 seconds	10.002
8	> 2 seconds	0 10.000	2	< 2 seconds	10.002



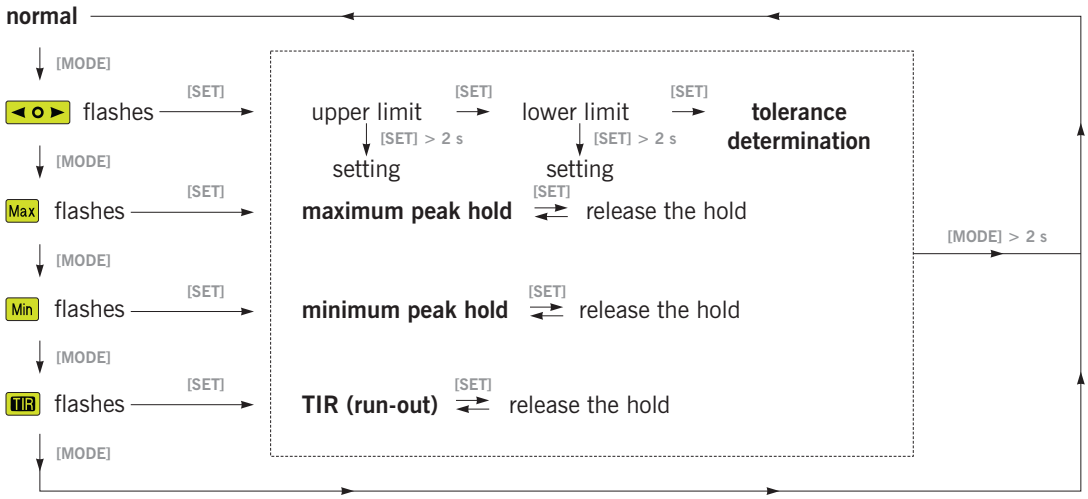
When setting the origin or the preset value, be sure to lift the spindle at least 0.2 mm above the bottom dead center.

After starting to set the preset value, pressing ZERO/ABS before the new preset value is stored returns the measuring instrument to the condition before setting (returns to 9.876 or 5.432 mm in the example above).

If the measuring instrument is turned off and on during preset or tolerance setting, the value being set is erased and the gauge returns to the condition before setting.

Measurement modes

The measuring instrument has the 5 measurement modes.



- **Normal mode** - is used for normal measurement, and to select the other modes.

To set the origin, switch between "+" and "–", set tolerance limits, or select a new measurement mode, it is necessary to return to the normal mode.

- **Tolerance determination mode** - is used to check and set the tolerance limits. Be aware that the tolerance limits must be set separately for the ABS and INC system.
  - Press the **MODE** button once in the normal mode. ◄ o ► flashes in the display.
  - Press the **PRESET/SET** button to check the tolerance upper limit setting. The previously set upper limit appears with a flashing ► sign.
  - To change the upper limit setting, press the **PRESET/SET** button, and use the same procedure used to set the origin.
  - When the new value has been set (► flashes), press the **PRESET/SET** button to check the tolerance lower limit setting. The previously set lower limit appears with a flashing ◄ sign. Change the setting by the same procedure used to change the upper limit setting.
  - When both limits have been set correctly, press **PRESET/SET** button to enter tolerance determination mode.

  If the current measurement value deviates from the range of the tolerance limits set previously, the background lights red as a warning.
  - When the tolerance limits have been checked by the procedure described above, the measuring starts tolerance determination straight away.

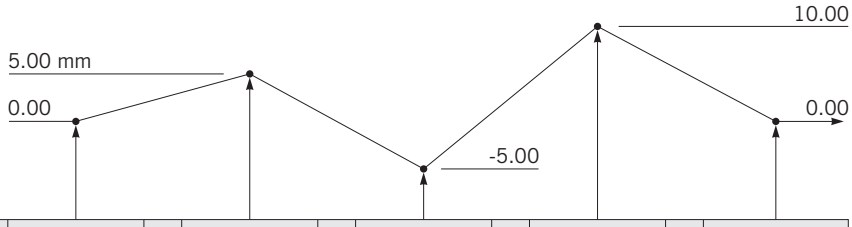
  Keep the **MODE** button depressed for at least 2 seconds to return to the normal mode.

There is no tolerance determination function for maximum/minimum peak hold and TIR measurement values.

To change the setting of the tolerance limits, first return to the normal mode and then switch to tolerance determination mode again.

- **Maximum peak hold mode** - in this mode, the measuring instrument holds the maximum value in the series of varying measured values.
  - Press the **MODE** button twice in the normal mode. Max flashes in the display.
  - Press the **PRESET/SET** button to switch to maximum peak hold mode. Max lights steady.
  - When the spindle moves, the maximum value is held. H is displayed.
  - Press the **PRESET/SET** button to release the hold, display the current position, and start measuring a new maximum value.
  - Keep the **MODE** button depressed at least two seconds to turn back to the normal mode.

Example of difference between maximum, minimum and TIR hold mode.



mode \ path	0	a	b	c	d
Maximum peak hold	0.00 mm	5.00 mm		10.00 mm	
Minimum peak hold	0.00 mm		-5.00 mm		
TIR	0.00 mm	5.00 mm	10.00 mm	15.00 mm	

- If this mode is entered from the ABS system, keep the **ZERO/ABS** button depressed for at least two seconds to set the position being held to zero. The measuring instrument can be used for comparative measurement.
- If this mode is entered from the INC system, keep the **ZERO/ABS** button depressed for at least two seconds to set the current position to zero.

Example of difference after "zero" set in maximum peak hold mode.

system \ operation	–	–	ZERO/ABS >2s	PRESET/SET	
ABS	Max 0.00 mm	H Max 5.00 mm	H Max 0.00 mm	Max -3.00 mm	H Max 2.00 mm
INC	Max 0.00 mm	H Max 5.00 mm	Max 0.00 mm	Max 0.00 mm	H Max 5.00 mm

- **Minimum peak hold mode** - in this mode, the measuring instrument holds the minimum value in the series of varying measured values.
  - Press the **MODE** button three times in the normal mode. Min flashes in the display.
  - This mode operations are done by the same procedure as maximum peak hold mode.

- **TIR (run-out) measurement mode** - in this mode, the measuring instrument holds the run-out width in the series of varying measured values.

  Only this mode has the same operation in both, the ABS and INC system.

  - Press the **MODE** button four times in the normal mode. TIR flashes in the display.
  - Press the **PRESET/SET** button to set the display to zero. TIR lights steady.
  - When the spindle moves, the run-out width is held. H is displayed.
  - Press the **PRESET/SET** button to release the held value and start measuring a new run-out width value.

Analog display

An analog scale and pointer in the form of dial indicator are continuously displayed at the top of the measuring instrument's LCD. In tolerance determination mode, the limit positions flash in this area. In a peak hold mode or TIR mode, the maximum and minimum positions flash in this area.

- **Switching the display range** - the analog display range can be switched to prevent pointers going too high or low.

  Press the **RANGE/→Adj.←** button to toggle the display range.

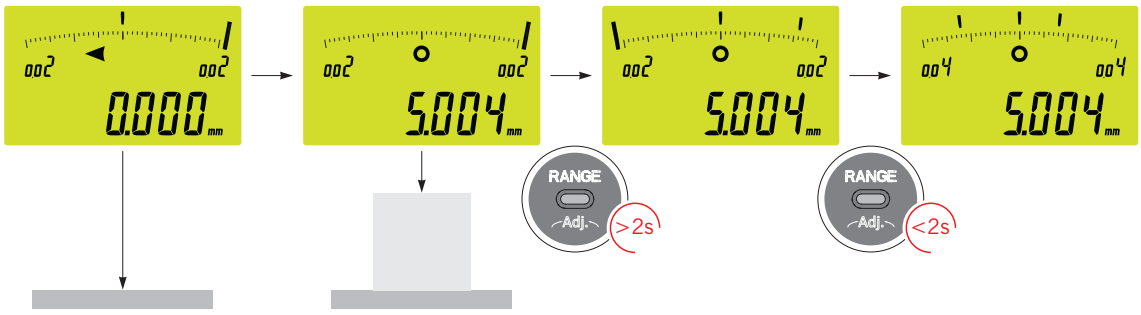
Resolution	Switching the display range (loop)
0.001 mm	0.02 (mm) -> 0.04 -> 0.1 -> 0.2 -> 0.4
0.01 mm	0.2 (mm) -> 0.4 -> 1 -> 2 -> 4

- **Pointer centering** - when a pointer is out of the analog display's range, use this function to shift the display so that the pointer is centered. This has the same effect as adjusting the bezel of a dial indicator to the desired scale.

  Keep the **RANGE/→Adj.←** button depressed for at least two seconds to center the pointer.

  The pointer position is adjusted so that the current measured value is in the center.

Example of judgement tolerance for the 5.000 ± 0.02 (upper limit 5.020 and lower limit 4.980) in the picture below.



Switching the counting direction

By default, the measuring instrument takes the positive direction to be the direction the spindle moves when it is pushed in. If needed, this direction can be set as the negative direction.

To reverse the counting direction, press the **+/–** button in the normal mode. Afterwards **REV** appears on the LCD display.

Locking the buttons

Keeping the **+/–** button depressed for at least two seconds deactivates all button input except **ON/OFF** and hold release. Afterwards appears on the LCD display.

To reactivate the buttons, keep the **+/–** button depressed for at least two seconds again.

Data input and output

By using the connecting cable (not standard delivery, only on request), the measuring instrument can be connected to the manufacturer miniprocessor or similar data processors, to transfer, total and record measurement values.

Use only the connecting cable specified by the manufacturer. Use of incompatible or deteriorated cables may result in data output failure.

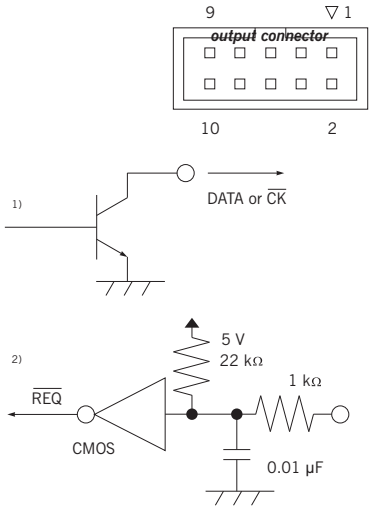
Before outputting data, read the manual delivered with the data processor carefully to ensure correct operation.

Data output may be disabled if an output request (REQ) is received when the spindle is in motion, or if the output interval is too short.

- Remove the output connector cover (on top of the measuring instrument, see page 2-3 for reference) and properly install the connecting cable. Store the cover on the safe place.

Output connector

PIN	Signal	IN/OUT
1	GND	-
2 [1)]	DATA1	OUT
3 [1)]	$\overline{CK}$	OUT
4	-	-
5 [2)]	$\overline{REQ}$	IN
6 [3)]	$\overline{ENTRY}$	IN
7 [3)]	$\overline{DATA2}$	IN
8	+ 9 V	-
9	+ 9 V	-
10	GND	-



3) $\overline{ENTRY}$ and $\overline{DATA2}$ are exclusive connectors for the manufacturer presetter

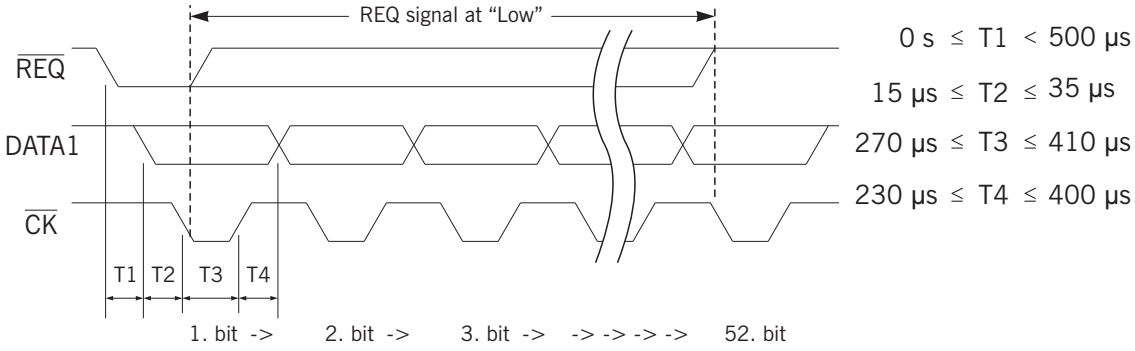
Output data format (DATA1)

d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13
all F (1111)				Sign	Measurement value							Unit
			+: 0 (0000) – : 8 (0001)					Decimal position 0.0.0.0.0.0 5 4 3 2			mm: 0 (0000)	

Example of output data as "-2.471":

1111	1111	1111	1111	0001	0000	0000	0100	0010	1110	1000	1100	0000
F	F	F	F	8	0	0	2	4	7	1	3	0

Timing chart



To make an output request (REQ), hold the REQ signal at "Low" until $\overline{CK}$ is output. Return it to "High" before the final (52nd) $\overline{CK}$ bit is output.

Part 3: Measuring plate thickness

For handling the plates use a safety gloves.

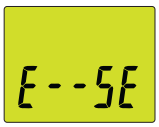
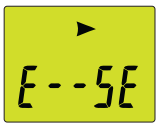
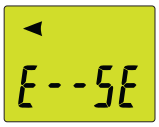
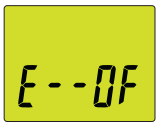
- Press the **ON/OFF** to start (begin) the measuring instrument.
- Press foot switch/pedal to lift the spindle of the measuring instrument, place the plate on the measuring table, position it properly under the spindle, and release the foot switch/pedal.
- The measured value (depending on the selected system and mode) is displayed on the LCD display of the measuring instrument.

Before shutting off the power supply, always press the ON/OFF button to turn the measuring instrument off. Shutting off the power while measuring instrument is operating can damage origin and other memory data.

Part 4: Troubleshooting

General

If the measuring instrument does not work properly, refer to the table below to find the paragraph that comes closest to your problem.

DISPLAY	SYMPTOM	PROBABLE CAUSE	REMEDY
	ABS composition error.	• If this error occurs while the spindle is stopped, it is a mulfuncion of measuring instrument. • If this error appears and soon disappears during spindle movement, it is not a measuring instrument mulfuncion, just an internal processing.	• The measuring instrument requires repair. Contact the manufacturer. • No action required, just an internal processing.
	***Tolerance setting error.***	• The tolerance limit value is set with the upper limit value being smaller than the lower limit value.	• Press the "SET" button to return to tolerance value setting, and then set the value so that the upper limit value is greater than the lower limit value.
	***Upper limit value setting error.***	• The upper limit value exceeds the number of digits which can be displayed.	• Press and hold the "SET" button to return to the upper limit value setting, and then set an appropriate value again.
	***Lower limit value setting error.***	• The lower limit value exceeds the number of digits which can be displayed.	• Press and hold the "SET" button to return to the lower limit value setting, and then set an appropriate value again.
	***Display overflow.***	• The display value exceeds the number of digits which can be displayed.	• When using the ABS system, press the "SET" button to start measurement origin setting, and then set the preset value again. • When using the INC system, press the "SET" button at an appropriate position to zeroset.

Part 5: Spare parts

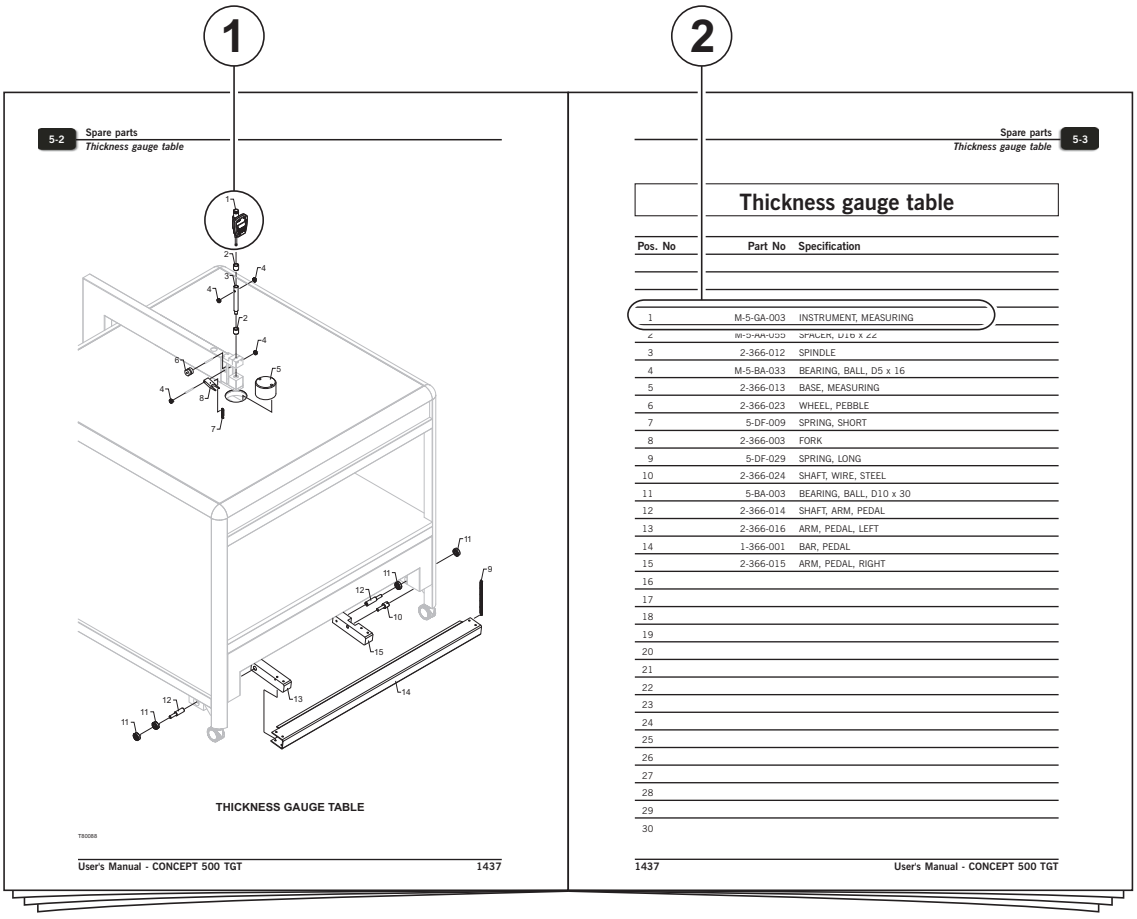
General

For need of spare parts please refer to the spare part list in this chapter with iso-metric drawing, descriptions and part numbers.

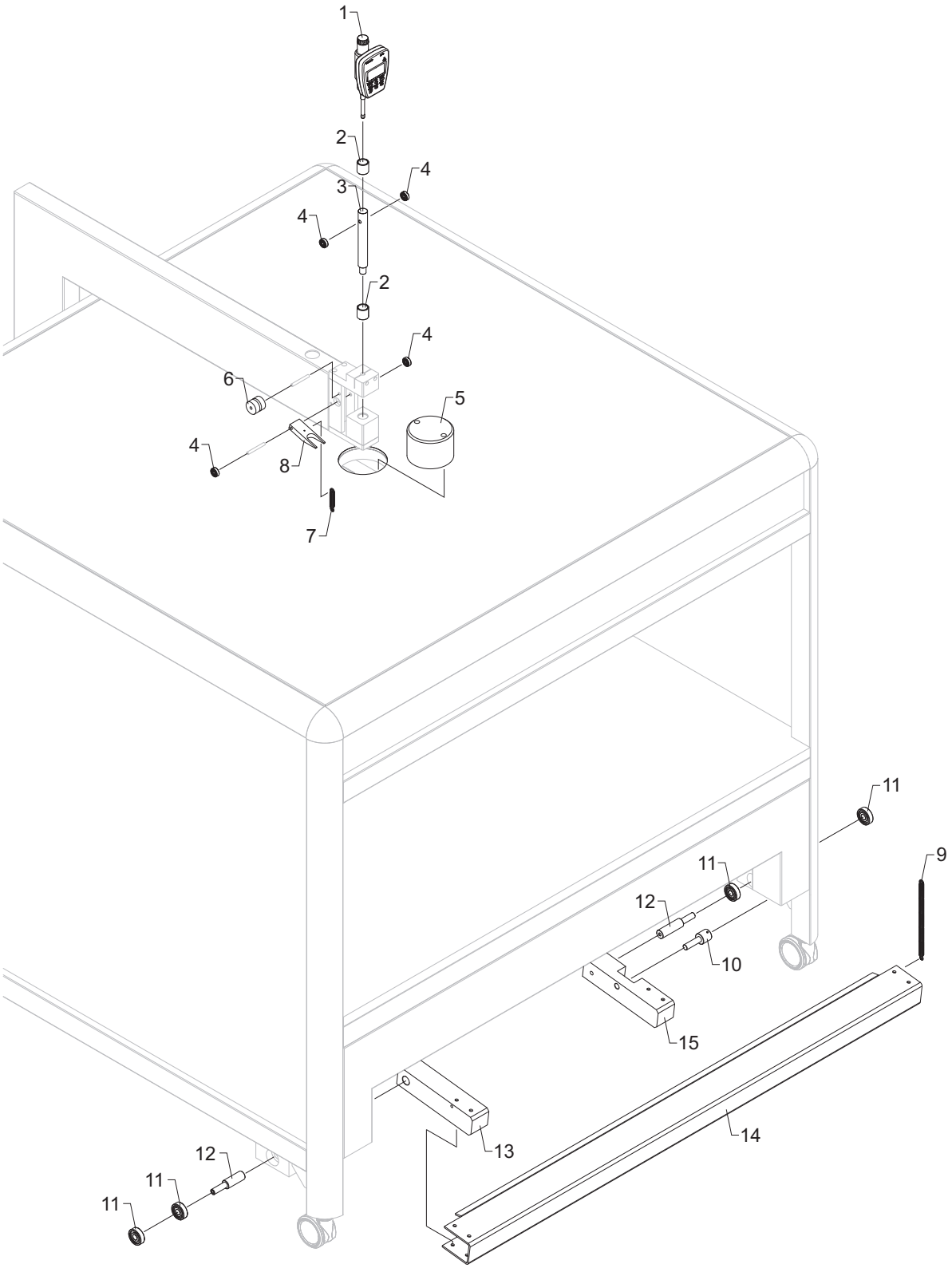
Ordering spare parts

When ordering spare parts please state carefully the spare part number, the part specification and the number of items wanted and send the order to your spare parts dealer.

Finding a spare part



1. Find the specific part and the part's Pos. No on the drawing.
2. Refer to the list on the opposite page to find the spare part's number and specification.



THICKNESS GAUGE TABLE

T80088

Thickness gauge table

Pos. No	Part No	Specification
1	M-5-GA-003	INSTRUMENT, MEASURING
2	M-5-AA-055	SPACER, D16 x 22
3	2-366-012	SPINDLE
4	M-5-BA-033	BEARING, BALL, D5 x 16
5	2-366-013	BASE, MEASURING
6	2-366-023	WHEEL, PEBBLE
7	5-DF-009	SPRING, SHORT
8	2-366-003	FORK
9	5-DF-029	SPRING, LONG
10	2-366-024	SHAFT, WIRE, STEEL
11	5-BA-003	BEARING, BALL, D10 x 30
12	2-366-014	SHAFT, ARM, PEDAL
13	2-366-016	ARM, PEDAL, LEFT
14	1-366-001	BAR, PEDAL
15	2-366-015	ARM, PEDAL, RIGHT
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		